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THE DATA OF MACROECONOMICS

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Measuring a Nation's Income

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Measuring a Nation's Income

- Microeconomics
  - *Microeconomics* is the study of how individual households and firms make decisions and how they interact with one another in markets.
- Macroeconomics
  - *Macroeconomics* is the study of the economy as a whole.
  - Its goal is to explain the economic changes that affect many households, firms, and markets at once.

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Measuring a Nation's Income

- Macroeconomics answers questions like the following:
  - Why is average income high in some countries and low in others?
  - Why do prices rise rapidly in some time periods while they are more stable in others?
  - Why do production and employment expand in some years and contract in others?

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THE ECONOMY'S INCOME AND EXPENDITURE

- When judging whether the economy is doing well or poorly, it is natural to look at the total income that everyone in the economy is earning.

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THE ECONOMY'S INCOME AND EXPENDITURE

- For an economy as a whole, *income must equal expenditure* because:
  - Every transaction has a buyer and a seller.
  - Every dollar of spending by some buyer is a dollar of income for some seller.

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THE MEASUREMENT OF GROSS DOMESTIC PRODUCT

- *Gross domestic product (GDP)* is a measure of the income and expenditures of an economy.
- It is the total market value of all final goods and services produced within a country in a given period of time.

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THE MEASUREMENT OF GROSS DOMESTIC PRODUCT

- The equality of income and expenditure can be illustrated with the circular-flow diagram.

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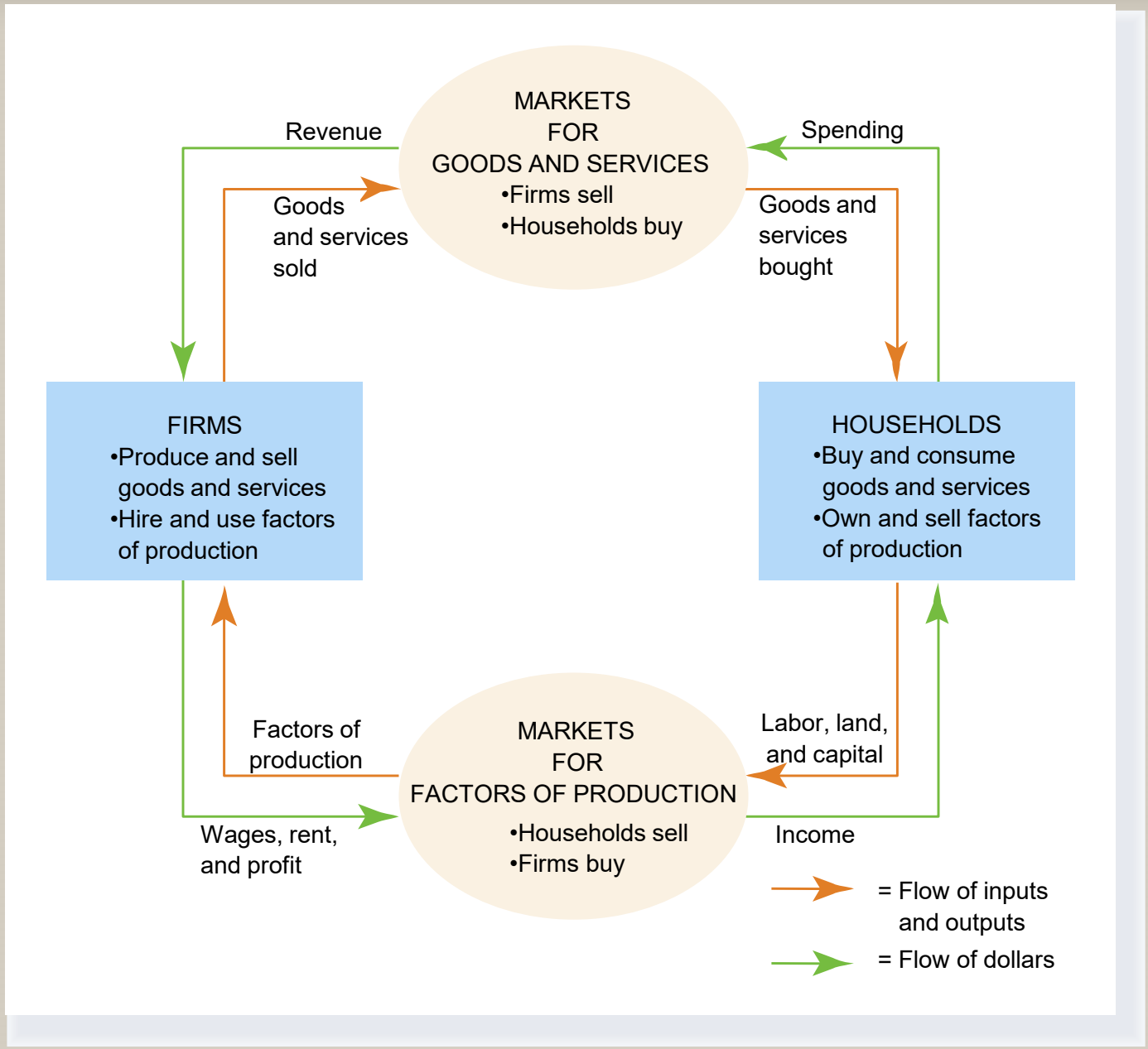
Figure 1 The Circular-Flow Diagram



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THE MEASUREMENT OF GROSS DOMESTIC PRODUCT

- GDP is the market value of all final goods and services produced within a country in a given period of time.

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THE MEASUREMENT OF GROSS DOMESTIC PRODUCT

- "GDP is the Market Value . . ."
  - Output is valued at market prices.
- ". . . Of All Final . . ."
  - It records only the value of final goods, not intermediate goods (the value is counted only once).
- ". . . Goods and Services . . . "
  - It includes both tangible goods (food, clothing, cars) and intangible services (haircuts, housecleaning, doctor visits).

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THE MEASUREMENT OF GROSS DOMESTIC PRODUCT

- "... Produced ..."
  - It includes goods and services currently produced, not transactions involving goods produced in the past.
- " ... Within a Country ..."
  - It measures the value of production within the geographic confines of a country.

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THE MEASUREMENT OF GROSS DOMESTIC PRODUCT

- ". . . In a Given Period of Time."
  - It measures the value of production that takes place within a specific interval of time, usually a year or a quarter (three months).

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THE COMPONENTS OF GDP

- GDP includes all items produced in the economy and sold *legally* in markets.

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THE COMPONENTS OF GDP

- What Is Not Counted in GDP?
  - GDP excludes most items that are produced and consumed at home and that never enter the marketplace.
  - It excludes items produced and sold illicitly, such as illegal drugs.

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- SISTEMA DE GRAFICOS DO BCB
- Time series management
- https://www3.bcb.gov.br/sgspub/localizarseries/localizarSeries.do?method=prepararTelaLocalizarSeries
- https://sidra.ibge.gov.br/tabela/1846#/n1/all/v/all/p/-1/c11255/90687,90691,90696,90705,90706,90707,93404,93405,93406,93407,93408,102880/l/v,,c11255+t+p/resultado

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DESEMPENHO

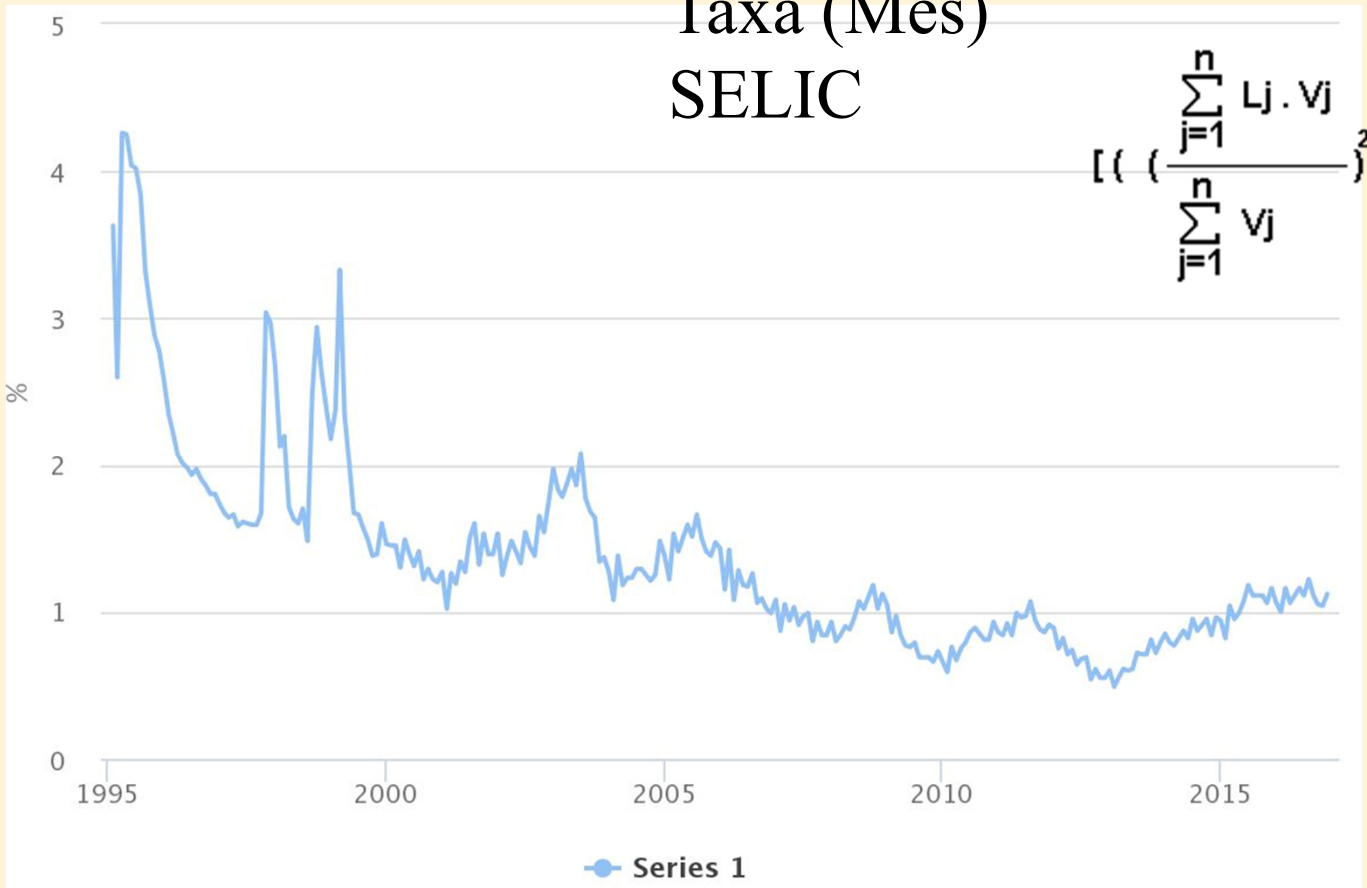
SISTEMA DE GRAFICOS DO B

Time series management

https://www3.bcb.gov.br/sgspub/localizarseries/localizarSeries.do?method=prepararTelaLocalizarSeries

Taxa (Mês)
SELIC

$$\left[\left(\frac{\sum_{j=1}^{n} Lj \cdot Vj}{\sum_{j=1}^{n} Vj} \right)^{252} - 1 \right) \times 100 \right] \%$$ ao ano



⇒ A taxa básica da economia brasileira é obtida mediante o cálculo da taxa média ponderada e ajustada das operações de financiamento por um dia, lastreadas em títulos públicos federais. O método de cálculo utilizado pelo Banco Central é o seguinte:

- ⇒ • Lj: fator diário correspondente à taxa da j-ésima operação;
- ⇒ • Vj: valor financeiro correspondente à taxa da j-ésima operação;
- ⇒ • n: número de operações

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THE COMPONENTS OF GDP

- GDP (*Y*) is the sum of the following:
  - Consumption *(C)*
  - Investment *(I)*
  - Government Purchases *(G)*
  - Net Exports *(NX)*

$$Y = C + I + G + NX$$

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THE COMPONENTS OF GDP

- *Consumption (C)*:
  - The spending by households on goods and services, with the exception of purchases of new housing.
- *Investment (I)*:
  - The spending on capital equipment, inventories, and structures, including new housing.

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THE COMPONENTS OF GDP

- *Government Purchases (G)*:
  - The spending on goods and services by local, state, and federal governments.
  - Does *not* include transfer payments because they are not made in exchange for currently produced goods or services.
- *Net Exports (NX)*:
  - Exports minus imports.

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Table 1 GDP and Its Components

	Total (in billions of dollars)	Per Person (in dollars)	Percent of Total
Gross domestic product, *Y*	$10,082	$35,375	100%
Consumption, *C*	6,987	24,516	69
Investment, *I*	1,586	5,565	16
Government purchases, *G*	1,858	6,519	18
Net exports, *NX*	−349	−1,225	−3

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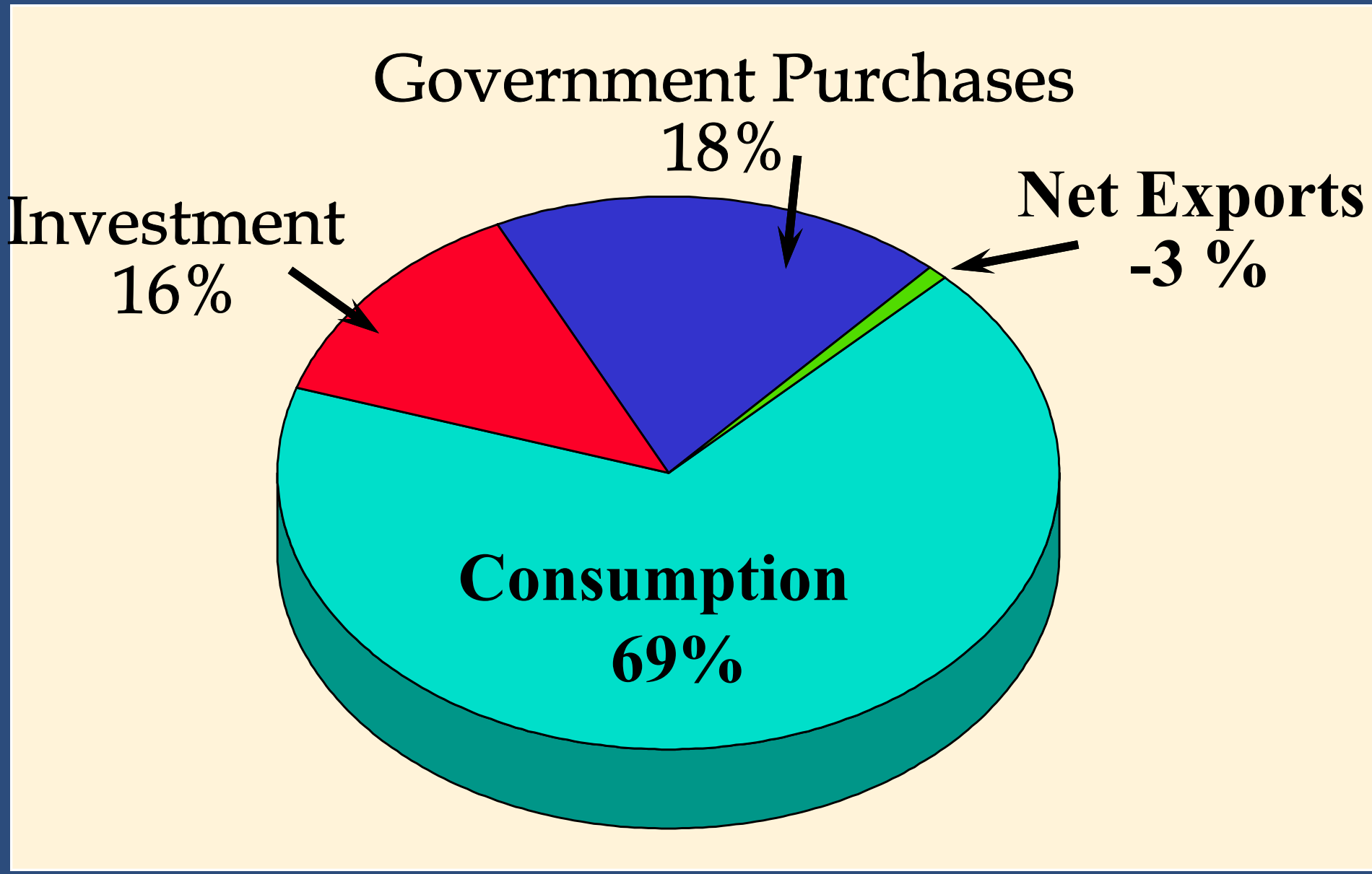
GDP and Its Components (2001)



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REAL VERSUS NOMINAL GDP

- *Nominal GDP* values the production of goods and services at *current prices*.
- *Real GDP* values the production of goods and services at *constant prices*.

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REAL VERSUS NOMINAL GDP

- An accurate view of the economy requires adjusting nominal to real GDP by using the GDP deflator.

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Table 2 Real and Nominal GDP

	Prices and Quantities			
Year	Price of Hot Dogs	Quantity of Hot Dogs	Price of Hamburgers	Quantity of Hamburgers
2001	$1	100	$2	50
2002	2	150	3	100
2003	3	200	4	150

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Table 2 Real and Nominal GDP

Year	Calculating Nominal GDP
2001	($1 per hot dog × 100 hot dogs) + ($2 per hamburger × 50 hamburgers) = $200
2002	($2 per hot dog × 150 hot dogs) + ($3 per hamburger × 100 hamburgers) = $600
2003	($3 per hot dog × 200 hot dogs) + ($4 per hamburger × 150 hamburgers) = $1,200

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Table 2 Real and Nominal GDP

Year	Calculating Real GDP (base year 2001)
2001	($1 per hot dog × 100 hot dogs) + ($2 per hamburger × 50 hamburgers) = $200
2002	($1 per hot dog × 150 hot dogs) + ($2 per hamburger × 100 hamburgers) = $350
2003	($1 per hot dog × 200 hot dogs) + ($2 per hamburger × 150 hamburgers) = $500

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The GDP Deflator

- The *GDP deflator* is a measure of the price level calculated as the ratio of nominal GDP to real GDP times 100.
- It tells us the rise in nominal GDP that is attributable to a rise in prices rather than a rise in the quantities produced.

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The GDP Deflator

- The GDP deflator is calculated as follows:

$$\text{GDP deflator} = \frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$$

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The GDP Deflator

- Converting Nominal GDP to Real GDP
  - Nominal GDP is converted to real GDP as follows:

$$\text{Real GDP}_{20XX} = \frac{\text{Nominal GDP}_{20XX}}{\text{GDP deflator}_{20XX}} \times 100$$

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Table 2 Real and Nominal GDP

Year	Calculating the GDP Deflator
2001	($200/$200) × 100 = 100
2002	($600/$350) × 100 = 171
2003	($1,200/$500) × 100 = 240

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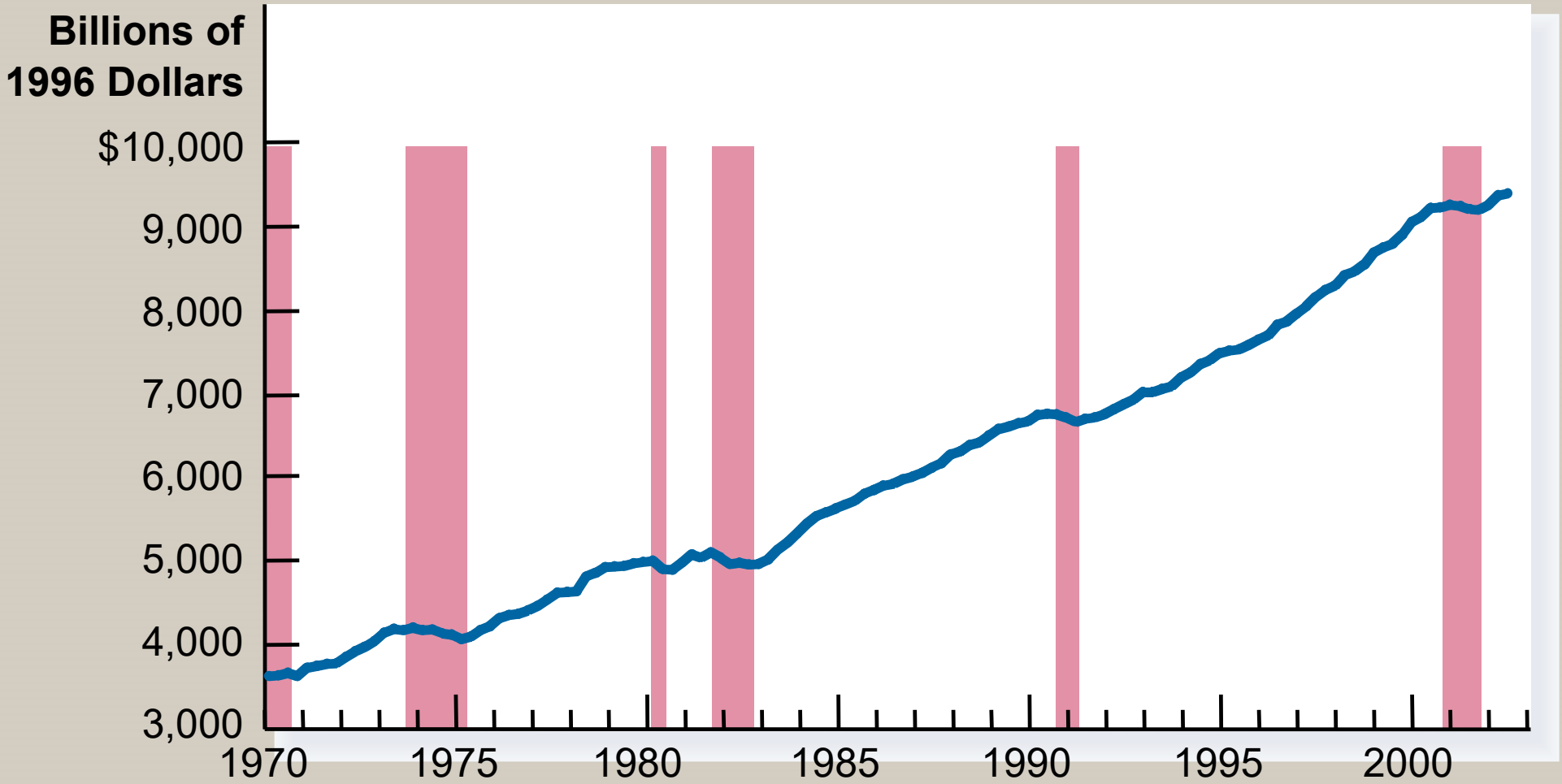
Figure 2 Real GDP in the United States



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GDP AND ECONOMIC WELL-BEING

- GDP is the best single measure of the economic well-being of a society.
- GDP per person tells us the income and expenditure of the average person in the economy.

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GDP AND ECONOMIC WELL-BEING

- Higher GDP per person indicates a higher standard of living.
- GDP is not a perfect measure of the happiness or quality of life, however.

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GDP AND ECONOMIC WELL-BEING

- Some things that contribute to well-being are not included in GDP.
  - The value of leisure.
  - The value of a clean environment.
  - The value of almost all activity that takes place outside of markets, such as the value of the time parents spend with their children and the value of volunteer work.

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Table 3 GDP, Life Expectancy, and Literacy

Country	Real GDP per Person (1999)	Life Expectancy	Adult Literacy
United States	$31,872	77 years	99%
Japan	24,898	81	99
Germany	23,742	78	99
Mexico	8,297	72	91
Russia	7,473	66	99
Brazil	7,037	67	85
China	3,617	70	83
Indonesia	2,857	66	86
India	2,248	63	56
Pakistan	1,834	60	45
Bangladesh	1,483	59	41
Nigeria	853	52	63

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Summary

- Because every transaction has a buyer and a seller, the total expenditure in the economy must equal the total income in the economy.
- Gross Domestic Product (GDP) measures an economy's total expenditure on newly produced goods and services and the total income earned from the production of these goods and services.

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Summary

- GDP is the market value of all final goods and services produced within a country in a given period of time.
- GDP is divided among four components of expenditure: consumption, investment, government purchases, and net exports.

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Summary

- Nominal GDP uses current prices to value the economy's production. Real GDP uses constant base-year prices to value the economy's production of goods and services.
- The GDP deflator—calculated from the ratio of nominal to real GDP—measures the level of prices in the economy.

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Summary

- GDP is a good measure of economic well-being because people prefer higher to lower incomes.
- It is not a perfect measure of well-being because some things, such as leisure time and a clean environment, aren't measured by GDP.

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